

Abstract Submitted
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Measurement of Dynamic Atomic Dipole Polarizability for Tungsten and Molybdenum using Integrated Phase Technique and Electrical Exploding Wires in Vacuum G.S. SARKISOV, Ktech Corp, T.E. COWAN, UNR, S.E. ROSENTHAL, K.W. STRUVE, SNL — The Integrated Phase Technique [1] was applied to measure dynamic atomic dipole polarizability for two refractory metals. A fast-rising current pulse $\sim 1000\text{A/ns}$ vaporized $16\mu\text{m}$ diameter wires of either W or Mo in vacuum. To avoid the generation of dense plasma we used wire coated with polyimide. Under these conditions the deposited energy totally converts the wire to metallic vapor. In this case the radial integration of the interference phase shift allows the reconstruction of atomic polarizability for the probing wavelength [1]. Partial vaporization of the metal or its ionization gives a lower value of the reconstructed atomic polarizability. In this case the correct atomic polarizability can be reconstructed as the maximum value vs. deposited energy.

[1]. G.S. Sarkisov, et al., Phys. Rev. A, 73, 042501 (2006).

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